NCHEMS
National Center for Higher Education Management Systems

DELTA PROJECT
on Postsecondary Education Costs, Productivity, and Accountability

Selecting the Targets of Opportunity:
Steps to Improving Education Attainment in Virginia in Tough Economic Times

Prepared for
Council on Virginia's Future

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I. Introduction

This report was prepared for the Council on Virginia's Future as part of an initiative to examine opportunities to improve educational attainment levels in the Commonwealth. The Council considers increasing the educational attainment levels of its workforce to be a critical prerequisite for meeting the economic challenges of a global economy and for ensuring long-term prosperity across the state. The findings presented here are based on high-level discussions with leaders in Virginia, an analysis of data from state and national sources, and our knowledge of promising or effective strategies in other states and countries. The recommendations are provided to indicate areas where detailed assessments, policy audits, and strategic planning could be expected to pay high dividends.

II. Background

Addressed from different directions, the answers are the same: Virginia needs more college graduates than the state's colleges and universities are currently producing. Benchmarked against global competitors, the shortfall by 2020 is calculated to be approximately 105,000 (Appendix Figure 1). Looking inward at the projections of Virginia workforce needs, a credible calculation yields a shortage of 96,000 (Appendix Figure 2). And closing the equity gap would require the production of an additional 70,000 minority graduates. The challenge is large, but by no means insurmountable given that current rates of production will yield an additional 680,000 graduates in this time period.

The state's fiscal situation complicates matters. State appropriations to higher education have been reduced significantly for FY2010, and prospects for a rebound in state funding are bleak; state budget experts have reported that gaps between revenues and current services expenditure needs are likely to persist for at least five more years. And there are limits to which state appropriations can be replaced by tuition revenues. Students already contribute as much as the state in support of higher education. Further, increasing the price of higher education is likely to discourage the very students who must be helped to succeed in higher education if degree production is to be increased and attainment goals reached. High-income students can afford price increases and they will continue to complete college at high rates. Research shows that lower income students – those who must succeed in greater numbers – are the most sensitive to price increases.

While the fiscal outlook is poor, the Commonwealth can ill afford a response from the state's higher education system that precludes making progress on the attainment agenda. The alternative is to utilize the resources that can be made available in ways that yield more outputs – to increase the productivity of the higher education enterprise. There is no doubt that education leaders are growing weary of the exhortation to do more with less; they can legitimately argue that they have been doing so for years. But the evidence suggests that more can be done. Institutions in other states have found ways to produce more graduates with the same level of funding than are being produced by Virginia colleges and universities (Appendix Figures 3-5). The need is not for more skimping, but a strategic approach to getting more students to complete college within the constraints of the resources that can be made available.

III. The Overarching Strategies

There is no single action – no silver bullet – that will yield the levels of productivity improvement needed to meet attainment goals. Progress will necessarily come from many smaller steps, each taken in pursuit of the same goal. Possible steps can be categorized into four distinct types of strategies.

A. Creating Cost-Effective Systems

This means not only improving the efficiency and effectiveness of each institution but creating a system of institutions well aligned to achievement of the goals for higher education in the state.

States like Ohio with their efficiency councils and Maryland with its Efficiency & Effectiveness initiative provide good examples of steps that are sharply focused on freeing up institutional resources for reallocation to uses that leverage better performance. But, just having efficient institutions is not sufficient; the collection of institutions must also be well aligned with goals. In the main, this means emphasizing institutions whose primary mission is educating and graduating students, restricting broader research missions to only one or two institutions in the system. Nevada and Arizona are examples of states that are meeting needs by expanding capacity in teaching-only institutions. California, Washington, and recently Texas, are examples of states that developed cost-ineffective strategies, expanding capacity in research universities.

B. Increasing Learning Productivity

This category encompasses the set of actions that can be characterized as eliminating "wastage" in the system. These steps include:

- Ensuring that students come to college prepared for college level work; significantly reducing the requirement that large numbers of students engage in remedial level work before taking college level courses.
- Not teaching students material they already know; letting students acquire credit by demonstrating knowledge of the subject matter through use of competency-based exams, assessment of portfolios, etc.
- Improving rates of course completion; reducing the number of students that drop courses before the end of the term
- Reducing credits accumulated before a degree is awarded through improving articulation and transfer arrangements, limiting credits institutions can require for a degree, and discouraging students from taking, at subsidized prices, many more credits than a degree requires.

C. Changing the Academic Production Function

This translates into streamlining program offerings and utilizing more cost-effective teaching methods. Streamlining involves both shedding small majors and elimination of minors that in better days might be nice to have but under current circumstances are costly extravagances. It also means eliminating many of the courses that meet the institution's general education requirements. Most institutions have large numbers of courses that are designated as meeting one or another of the institutions general education requirements. In reality, students fulfill these requirements by actually enrolling in significant numbers in only a small fraction of these courses. Institutions – and students – would be better served by eliminating the majority of these courses, creating a core of courses with better academic alignment, and focus on teaching this set of core courses in a more cost-effective fashion.

Once the lower division curricula are fashioned in a more coherent way, it is possible to apply pedagogical approaches that yield better learning outcomes for large numbers of

students at substantially reduced costs. Virginia institutions already know how to do this; Virginia Tech's math emporium is a national example of course reengineering.

D. Addressing Leaks in the Education Pipeline

Many of the causes of students' failure to successfully navigate the postsecondary education system are found at the intersections between different components of the education enterprise. A major stumbling block is failure to align high school completion requirements with college entrance requirements. The second is at the intersection between two- and four-year institutions where, too often, failures in the system cause students to retake courses and otherwise accumulate far more credits than necessary to complete a degree. The systemwide transfer agreement signed by the VCCS and each four-year public institution in Virginia is a major step forward in dealing with the second of these two problems. The first remains an unresolved stumbling block.

IV. Targets of Opportunity for Virginia

There are many possibilities for improving the productivity of Virginia's higher education system – getting better performance from more purposeful use of whatever resources the enterprise has at its disposal. Institutions should be encouraged to apply all that fit their environment and circumstances. There are some steps, however, that can yield significant benefits but can't be implemented on a campus-by-campus basis; they require systemic action.

Given the already high performance (and selectivity) of many of the universities in Virginia, it is suggested that the greatest opportunities for increasing the production of college graduates lie in improving the number of VCCS enrollees who complete an associate degree, transfer, or obtain a high-value certification. To be sure, there is room for improvement in several of the four-year institutions as well; these opportunities should not be ignored. But because of size, relative costs, and comparative data that show it ought to be possible to get substantially improved performance, even at their relatively low levels of financial support (Appendix Figure 6), the VCCS represents the best target of opportunity. Unless VCCS institutions produce more degrees and certificates than is now the case, they will remain a low-cost option when viewed on a per-student basis, but a high-cost option when the calculation is made on a per-degree basis (although they compare more favorably when put on a per-completion basis with certificates as well as degrees in the calculation (Appendix Figure 1). For the economic benefit of individuals and the state, expectations and conditions must be created that help ensure that many more students who enroll in community colleges complete a program of some sort.

The following is a menu of steps that could be taken within the VCCS to promote success on the program completion agenda. At this point they are options not concrete recommendations.

A. Improve curricular alignment between K-12 and postsecondary education, particularly with the community colleges. One of the most cost-effective ways to ensure college success is to prepare students for that success while they are still in the K-12 system. Higher education, most importantly the community colleges that now get the majority of students who come to college ill prepared. Concrete steps that the VCCS can take in this regard are:

1. Develop a clear statement of what a student should know and be able to do to be successful in a VCCS institution. If k-12 teachers don't have a very specific sense of collegiate expectations they can't possibly teach to those expectations.

2. Select/develop a placement exam that reflects these expectations and has the capacity to diagnose areas of student strength and weakness, not just yield a pass/fail verdict. Apply this exam to all students enrolling in credit courses at all VCCS institutions.
3. Apply the same cut-off scores (or evidence of mastery of the embedded academic skills) at all VCCS institutions.
4. Continually fine-tune both the exam and the cut-off scores based on analysis of systemwide performance data.
5. Work with high schools to administer this exam in the junior year to allow time for removal of deficiencies prior to college entrance.

B. Develop a systemwide approach to developmental education. A high proportion of students enrolling in VCCS institutions are placed into developmental/remedial education courses. For them to be successful they must 1) close the preparation gap between where they are and college readiness, 2) and do so rapidly – before classes start in the fall or by the end of the first semester. This is recognized as a tall order, but real progress can be made if:

1. Developmental education instructional materials are modularized (in sync with the diagnostic capabilities of the placement exam so that remediation can be focused only on the areas of student weakness).
2. Technology is utilized as the primary vehicle for delivering course content. Classroom based instruction can't possibly be as tailored to needs of each student as technology-based learning modules. Such modules have the added advantage of providing continuous information on student effort, progress, and areas of difficulty.
3. Coaches/councilors are available to provide the necessary "high touch" personal interventions necessary for student success.

This vision for how cost-effective, high-performance developmental education might be delivered is not unlike the approach to math embodied in the Virginia Tech Math Emporium. To implement this approach will require that:

- The content and delivery capacity be developed as a systemwide initiative
- Coaches/councilors (who may be capable students instead of regular employees) are available at all campus sites
- The system supports access to a 24/7 help line for students who are working at home or at times that on-campus coaches are not available.

C. Develop accelerated courses/programs. Fully 20% of the Virginia working age population has attended college but not completed a program (Appendix Figure 8). This population represents low-hanging fruit for degree completion if programs are delivered in formats that meet their needs. Experience in other Community College Systems (e.g., Ivy Tech in Indiana) suggests that the characteristics of successful programs are:

- A focus on high-value job oriented certificates and degrees.
- Courses delivered in short (e.g., 5 week) blocks.
- Very little, if any, course choice within the program.

- A guarantee that courses will be available at the point in the sequence when the students need them.
- Intensity – courses are offered 48 weeks a year. The purpose is to offer programs that students see as having certainty of completion in as short a time period as possible.
- Availability of "wrap-around" support services. This is another area where there may be opportunities to provide a set of services on a systemwide basis – if not directly to students, then to generalist "case managers" on each campus (the system providing a "specialists" help desk.).

In addition to these initiatives suggested to the VCCS, there are three elements of statewide infrastructure recommended for serious attention. The first of these is the development of a statewide student unit record tracking system, one that allows students to be tracked through the K-12 system, into and through the postsecondary system and into the workplace at every stage (while in school and afterwards). Only through analyses of data in such a dataset can weaknesses in the system be identified with some precision and steps taken to remedy problems. The federal government is making available to states many millions of dollars for the development of such systems. It is critically important that the designs of such systems encompass links to postsecondary education and the workforce and not be seen only as a way to fill the gaping hole in K-12 data capacity.

The second is the development of a strategic financing plan for higher education. Such a financing plan should:

- Be comprised of an integrated set of policies concerning state subsidies to institutions, tuition, and state need-based student financial aid.
- Recognize differences among different types of institutions (allowing, for example, tuition policies to be very different at institutions serving a largely high-income student body from those at VCCS that serves predominantly students of limited means. This also requires state subsidy patterns to vary substantially across different types of institutions).
- Link the allocation of some resources directly to achievement of desired outcomes. This translates into the design and implementation of funding mechanisms that create incentives for completion especially at the community colleges. This can take the form of course completions as in Ohio, students' achieving momentum points (e.g., successfully completing developmental education in the first semester and others) as in the community colleges, or for program completion as in Ohio, Indiana, and Texas.
- Reward all institutions that increase the numbers of degrees awarded, private (independent and for-profit) as well as public.
- Ensure that tuition and student aid policies are tightly linked. The Shared Responsibilities model of Minnesota and Oregon handle this linkage in a particularly effective way.

The final infrastructure piece is an addition to the accountability metrics used in Virginia. Both SCHEV and the Council for Virginia's Future track performance of institutions and the system over time. It is suggested that a productivity metric – something as simple as cost per degree calculated in a simple, transparent way (as in Appendix Figure 7) – be added to the mix. Without giving continuous attention to a metric that tracks not only performance but the cost of achieving that

performance, focus on the productivity agenda will quickly sink out of sight to be replaced by the age-old controversies about the adequacy of institutional funding.

V. Conclusion

Virginia faces challenges in creating a competitive workforce, improving social equity, and distributing benefits more evenly across the geographic regions of the state. These challenges must be confronted at a time of particularly tight constraints on resources. While the challenges are daunting, they are not as difficult as those faced by many other states, nor are they impossible to meet. A systematic and systemic effort to improve educational productivity is a key element in eventually achieving a successful conclusion.

Appendix

Figure 1. Additional Degree Production Needed for Virginia to Match Best Performing Countries in Educational Attainment by 2020

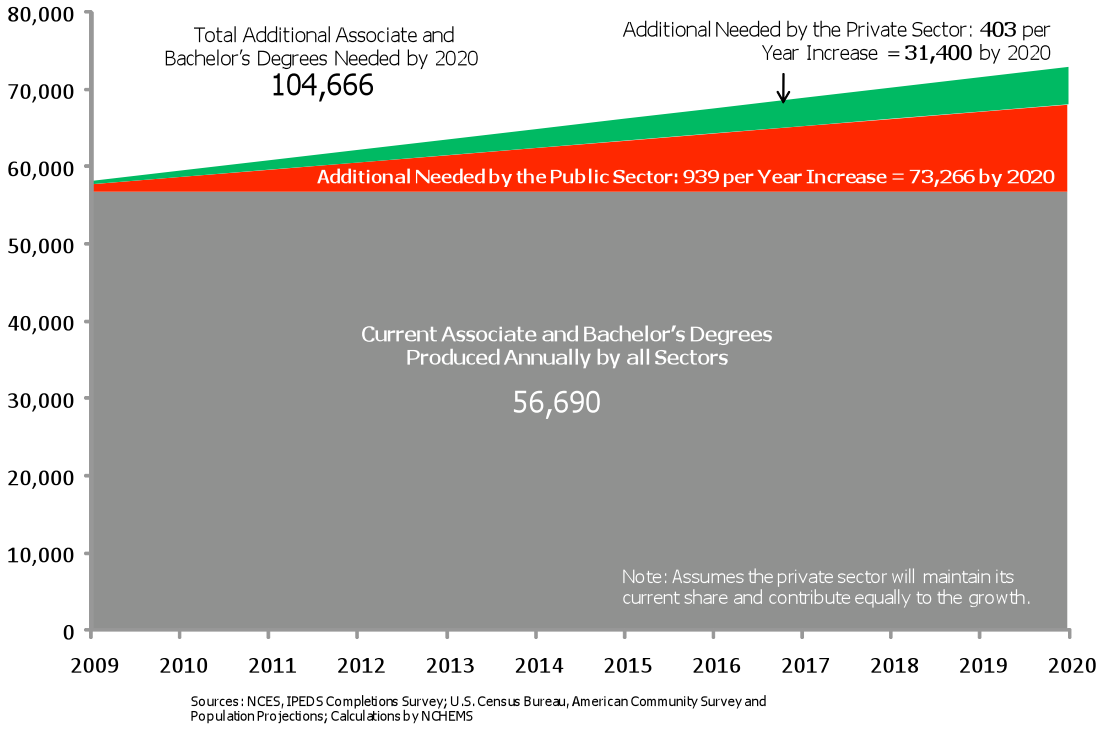
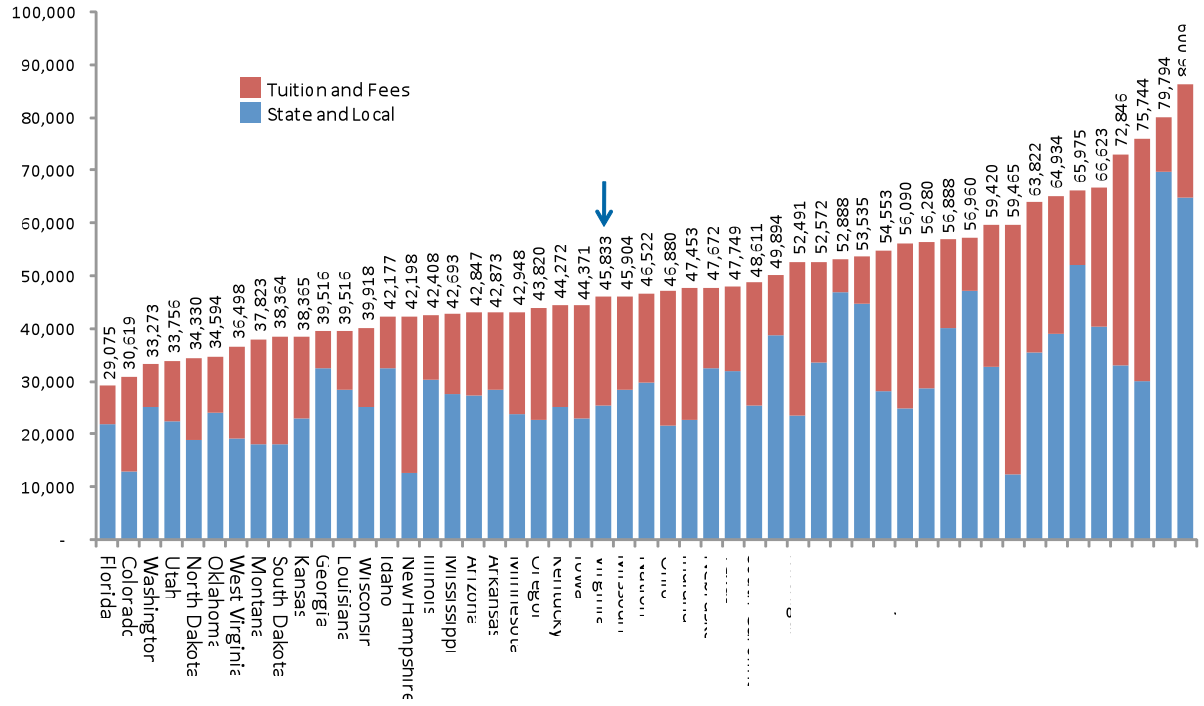


Figure 2. Closing the Workforce Gap

• Job openings created by industry growth to 2018 that require a college degree (estimate revised by Dr. Churma from original 239,239 figure)	25,375
• Add two years at projected growth rates	50,075
• Growth in demand for college degrees due to retirements	180,718
• Growth in demand for college degrees due to changing degree requirements, at 0.58% per year (source: 2000 census and 2007 ACS)	295,403
• Total demand for additional degree holders	776,571
• Degree production at current annual rate (56,900)	680,280
• Projected gap between degree production and workforce demand	96,291
• Additional degrees needed to reach the level of best performing countries	104,666
• Difference (needed reduction in net migration of college-degreed workers to ensure job openings for all Virginia graduates – about a 3.9% reduction)	8,375

Figure 3. Productivity: Total Funding per Degree/Certificate

(Weighted*, 2006-2007)
Public Only



Sources: SHEEO State Higher Education Finance Survey 2008; NCES, IPEDS Completions Survey; U.S. Census Bureau, American Community Survey (Public Use Microdata Samples)

*Adjusted for value of degrees in the state employment market (median earnings by degree type and level)

Figure 4. Performance Relative to Funding: Bachelors Degrees Awarded per 100 FTE Undergraduates (Public Research Institutions – US States & Virginia)

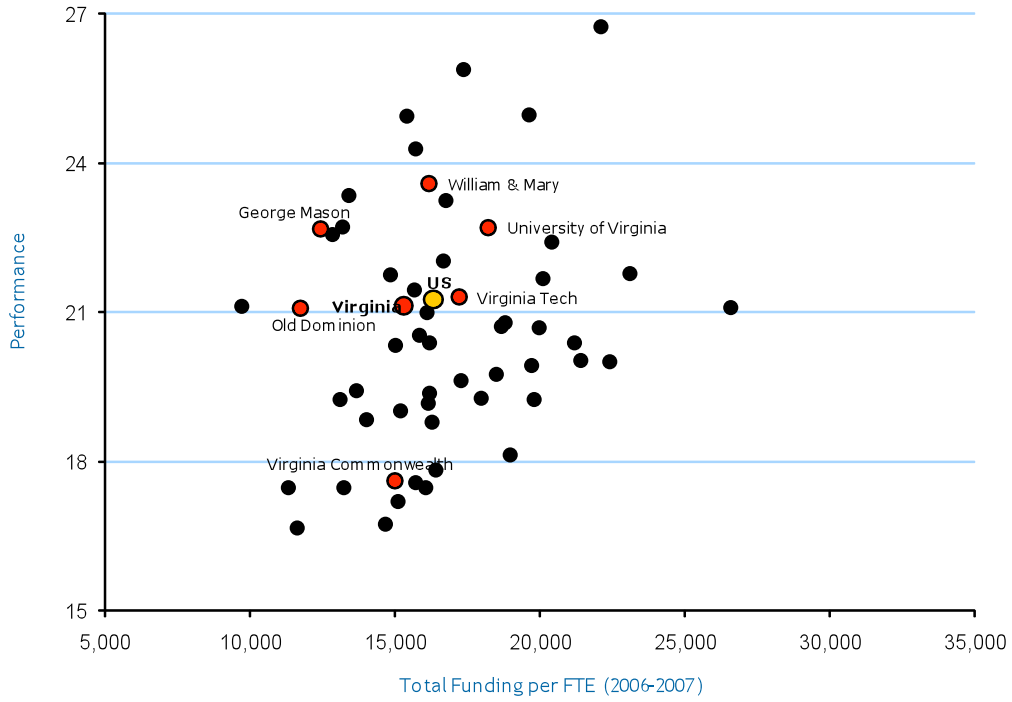


Figure 5. Performance Relative to Funding: Bachelors Degrees Awarded per 100 FTE Undergraduates (Public Bachelors & Masters – US States & Virginia)

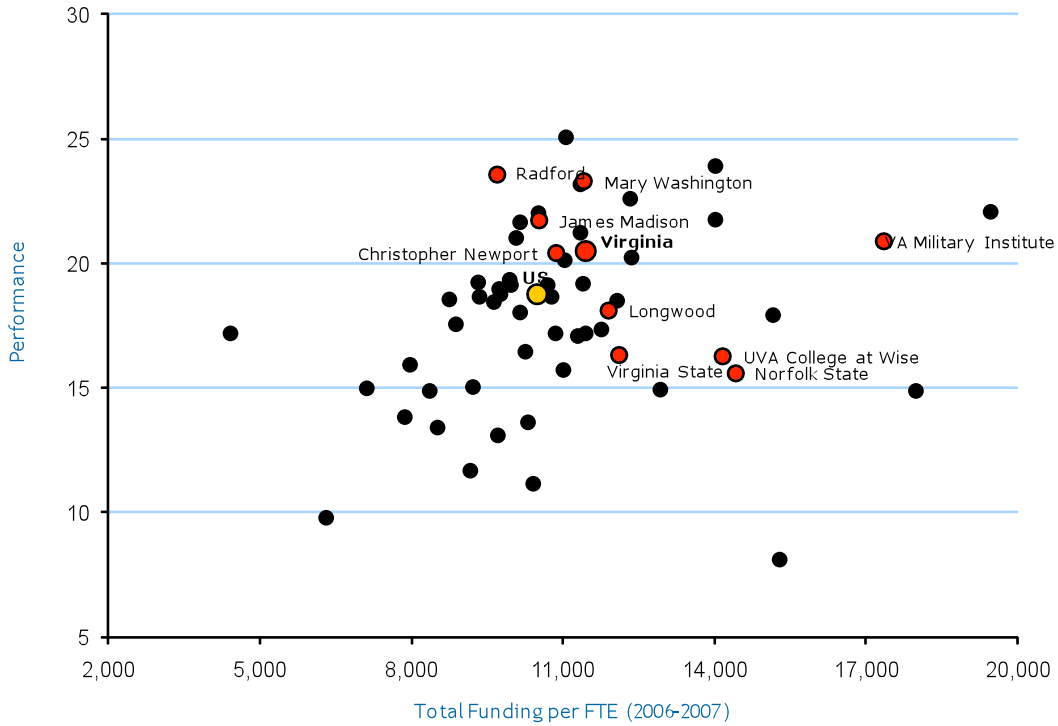


Figure 6. Performance Relative to Funding: All Credentials Awarded per 100 FTE Undergraduates (Public Two-Year Institutions)

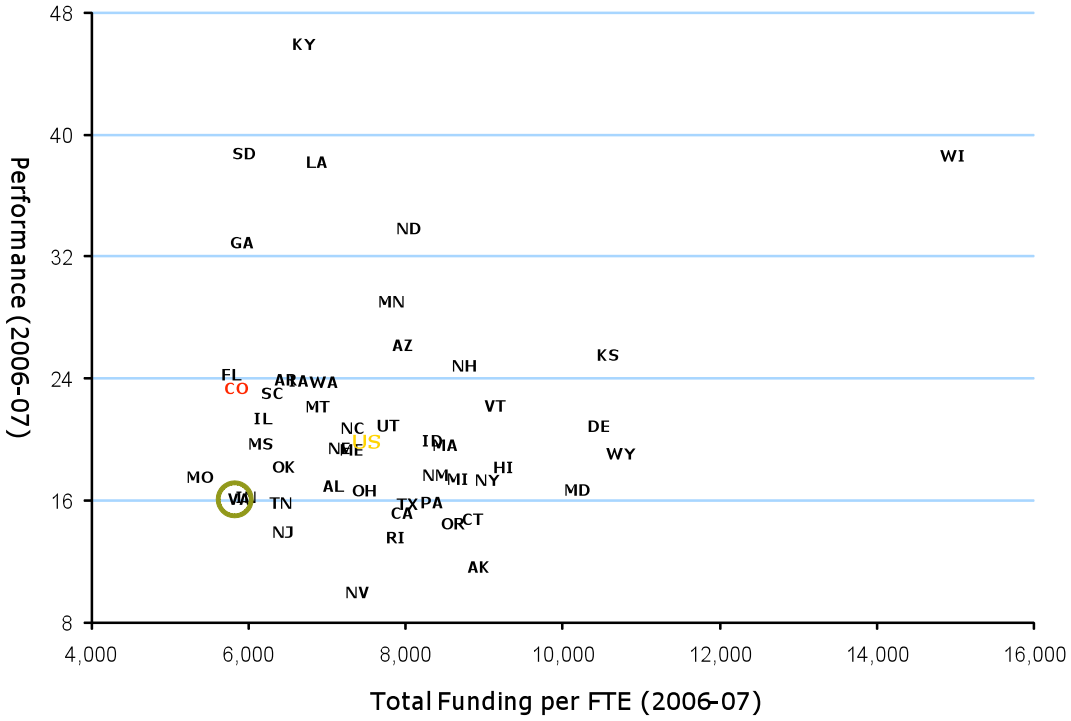


Figure 7. Summary Spending Statistics Virginia Public Institutions Median Within Category, 2006

	Public Research	Public Masters	Public Bachelor's	Public CC
Total Spending, all functions/FTE student	$27,643	$16,569	$18,264	$8,807
Spending for educational and related (E&R) costs only	$13,483	$10,097	$9,983	$7,615
Percent of E&R costs going for instruction	67%	56%	45%	54%
Percent of E&R costs going for student services	5%	8%	10%	8%
Percent of E&R costs for shared admin/support/maintenance	29%	38%	44%	40%
Student share of E&R costs	55%	44%	36%	33%
Spending for E&R/degree	$50,655	$40,539	$62,612	$55,425
Spending for E&R/all completions	$50,366	$40,404	$62,612	$38,751

Figure 8. Adults 25 to 64 with Some College but No Degree 2008